National Aeronautics and Space Administration
Langley Research Center

News Researcher

Biweekly Employee and Contractor Publication

Volume 18 ❖ Issue 12 ❖ June 18, 2004

Roe Named Deputy Director

By MARNY SKORA
Langley Research Center

Langley Research Center Director Roy D. Bridges Jr. on June 10 named Lesa Roe Deputy Director.

Roe will assist in the general management of the Center and act with the authority of the Director in his absence. She will help plan, organize and direct Center and inter-center activities to advance research significant to national aerospace programs and objectives.

"Lesa Roe's experience base is an outstanding blend of educational, technical and leadership qualifications," Bridges said. "She has a broad perspective gained from working at multiple NASA centers, and she has considerable insight into the issues that face Langley. I am thrilled to have her as my partner in leading Langley during these exciting times."

Roe has served as Langley's Associate Director for Business Management since August 2003. She was responsible for business functions and provided leadership in the development, evaluation and recommendation of new or modified business objectives.

"Lesa is a great addition to the Langley leadership team," NASA Deputy Administrator Frederick Gregory said. "Her diverse background, management skills and business acumen will be invaluable as we work toward return to flight and to implement the Vision for Space Exploration."


Roe

Roe has more than 18 years experience in engineering, technical and managerial positions, working for both government and private industry.

Roe started her engineering career performing satellite communications analysis for Hughes Space and Communications in El Segundo, Calif.

She began her NASA career in 1987 as a radio frequency communications engineer in Kennedy Space Center's Space Shuttle Engineering Directorate. From 1990 to 1999, Roe successfully managed the processing and launch of multiple payloads through Kennedy's Payload Processing Directorate and the ISS Hardware Integration Office.

From 1999 through 2003, she managed the ISS Payloads Office at Johnson Space Center. She was responsible for development, integration and on-orbit operations of ISS research and technology payloads.

Roe earned a bachelor's degree in electrical engineering from the University of Florida in 1986 and a master's degree in electrical engineering from the University of Central Florida in 1991. She has completed executive management programs at Harvard University, the University of Michigan and Smith College.

She has received the NASA Exceptional Service Medal, the NASA Superior Accomplishment Award and a NASA Continuous Improvement Award.

Marny Skora is head of Langley's Public Affairs Office.

'A Whole Lotta Shakin' Goin' On'

NASA Technology Alerts Pilots Of Dangerous Turbulence

By KATHY BARNSTORFF
Langley Research Center

A NASA-developed technology that can automatically alert pilots of potentially dangerous turbulence will make its first evaluation flights on a commercial airliner.

The idea behind NASA's Turbulence Prediction and Warning System (TPAWS) airborne radar is to give flight crews advance warning so they can avoid turbulence or advise flight attendants and passengers to sit down and buckle up to avoid injury.

Researchers at Langley Research Center developed TPAWS to detect turbulence associated with thunderstorms as part of the NASA Aviation Safety and Security Program. NASA teamed with Delta Air Lines in Atlanta; AeroTech Research in Hampton; and Rockwell Collins in Cedar Rapids, Iowa, for the in-service evaluation of a production-prototype airborne radar unit with turbulence hazard prediction capabilities.

Delta will install the TPAWS/Rockwell Collins radar unit on a Boeing 737-800

Continued on Page 5


Langley Research Center researchers Robert Neece (left) and Bruce Kendall (right) try to observe the turbulence radar during a bumpy encounter near thunderstorms on board the Airborne Research Integrated Experiments System 757 aircraft.

Photo by Jeff Caplan

RONALD W. REAGAN, 1911-2004

NASA ADMINISTRATOR SEAN O'KEEFE REMEMBERS THE LEGACY OF PRESIDENT REAGAN AT WWW.NASA.GOV

NASA Vision: *To improve life here, To extend life to there, To find life beyond*
NASA Mission: *To understand and protect our home planet ● To explore the Universe and search for life*
To inspire the next generation of explorers ... as only NASA can

Briefs

Around the Agency

NASA SELECTS ADMIRAL CANTRELL FOR ITA

NASA Administrator Sean O'Keefe has selected Rear Admiral (Ret.) Walter H. Cantrell to help establish and lead the Agency's independent technical authority within its engineering, operations and safety organizations.

Cantrell joins NASA as Deputy Chief Engineer for Independent Technical Authority (ITA). He has served on NASA's Aerospace Safety Advisory Panel (ASAP) and as a member of the Stafford-Covey Task Group (SCTG) assessing the agency's return to flight implementation efforts.

"One of the most difficult Columbia Accident Investigation Board organizational recommendations is that we develop an independent technical authority to assure engineering excellence," O'Keefe said. "Walt's role will be to guide the development and implementation process for us. He is no stranger to the NASA family and brings a tremendous amount of experience to this agency. With his hands-on engineering and technical background, he knows what an exemplary independent technical authority needs to be."

Cantrell retired from the U.S. Navy in 1995 after serving as Commander of the Space and Naval Warfare Systems Command. During his distinguished career, he served in senior engineering positions and had program management responsibilities for design and acquisition of nuclear submarines. NASA HQ RELEASE: 04-180

CASSINI WILL UNLOCK SATURN'S SECRETS

The international Cassini-Huygens mission is poised to begin an extensive tour of Saturn, its majestic rings and 31 known moons. After nearly a seven-year journey, Cassini is scheduled to enter orbit around Saturn at 10:30 p.m. EDT, June 30.

"The Saturn system represents an unsurpassed laboratory, where we can look for answers to many fundamental questions about the physics, chemistry, evolution of the planets and the conditions that give rise to life," said Ed Weiler, NASA's Associate Administrator for Space Science.

Cassini was launched on Oct. 15, 1997, on a journey covering 3.5 billion kilometers (2.2 billion miles), Cassini is the most instrumented and scientifically capable planetary spacecraft ever flown. There are 12 instruments on the Cassini orbiter and six on the Huygens probe. The mission represents the best technical efforts of 260 scientists from the United States and 17 European nations. The mission cost approximately $3 billion.

The Cassini/Huygens mission is a four-year study of Saturn. The 18 highly sophisticated science instruments will study Saturn's rings, icy satellites, magnetosphere and Titan, the planet's largest moon.

For information about the Cassini-Huygens mission on the Internet, visit: <http://www.nasa.gov/cassini> and <http://saturn.jpl.nasa.gov>. NASA HQ RELEASE: 04-166

News Researcher

The Researcher News is an official publication of Langley Research Center, National Aeronautics and Space Administration, Hampton, Va., 23681-2199. It is published every other Friday in the interest of all Langley employees, contractors and retirees and has a circulation of approximately 7,200. It is distributed to all Langley employees, contractors, retirees and on-site university personnel, with limited distribution to NASA Headquarters, other NASA centers and, by special request, to other non-NASA individuals and organizations. Questions related to the content and distribution of the Researcher News should be addressed to Keith Henry, Mail Stop 115, (757) 864-6120. Submit contributions and off-site address changes to the editor via e-mail <j.r.roberts@larc.nasa.gov>, telephone (757) 864-8150 or Mail Stop 147. Articles, photos and announcements are due by 5 p.m. the Monday following the date of this issue.

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Science and Technology Corp.

The privilege of listing announcements in this publication is restricted to the employees, contractors and retirees of the Langley Research Center. Articles must be offered without regard to race, color, religion, sex or national origin. All materials are subject to editing.

The Researcher News accepts signed letters to the editor from Langley Research Center employees, on-site contractors and retirees. Letters are limited to 200 words and will be edited only for grammar. When necessary, letters may be edited for space, but only with the author's approval. Letter-writers are limited to one submission on a topic every six months. Questions regarding this policy should be directed to Keith Henry, managing editor, at 864-6120 or <h.k.henry@nasa.gov>.

Read the Researcher News online at <http://researchernews.larc.nasa.gov>.

Hyper-X Team Honored

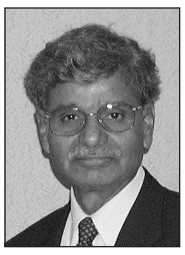
Victor Lebacqz (left), NASA's Associate Administrator of the Office of Aeronautics, and Langley Research Center Director Roy D. Bridges Jr. (right), pose with Luat T. Nguyen, the X-43A Return to Flight manager, and Vincent L. Rausch, the Hyper-X program manager. Langley hosted a Hyper-X Team Award Program on June 2 in the H.J.E. Reid Conference Center to recognize the employees that contributed to the successful flight of a scramjet-powered vehicle at the world speed record of Mach 7. "The NASA family is proud of your achievement," Lebacqz said. "You've given us another reason to celebrate."

Photo by Peggy Hopkins

Tripathi Named APS Fellow

Langley Research Center employee **Ram Tripathi** was honored by the American Physical Society (APS) at its annual meeting in Denver.

Tripathi, a senior research scientist in Langley's Analytical and Computational Methods Branch, was named a Fellow and cited "for pioneering development of nuclear cross-section models used around the world in a wide range of disciplines and applications including space missions and for outstanding contributions to the international physics community."



Tripathi

APS Fellowship is limited to scientists who have attained worldwide prominence in physics and their work is recognized and used not only in their area of specialty but also significantly impacts other areas. The honor is limited to no more than one-half of 1 percent of the membership of the APS each year.

Crawford

Crawford Elected To LFCU Board

Langley Research Center employee **Buena E. Crawford** has been elected to the board of directors for Langley Federal Credit Union (LFCU). Crawford, who works in Langley's Office of the Chief Financial Officer, will serve as 1st vice chairman.

Farrow Retiring After 40 Years

Langley Research Center's Capital Investment Planning Office will host a retirement social for **Alan L. Farrow** from 1 to 3 p.m. July 1 in Bldg. 1209, Room 180. Farrow is retiring after 40 years of service. Light refreshments will be served. To make a gift contribution, contact Cynthia Weathers at 864-6856 by June 28.

In Memoriam

James C. Barnes Jr.

James Clinton Barnes Jr. died on June 2 at the age of 55. Barnes was born in the Philippines and raised in Suffolk.

Barnes started working for NASA in 1983 and was an active employee in Langley Research Center's Systems Engineering Branch at the time of his death. He was the lead engineer for the first lidar laser flown in space, and he developed the first turntable laser to fly on NASA's ER-2 aircraft. He also served on the Undersecretary of Defense's Advisory Group and with the Optical Society of America's Advanced Solid-State Laser Committee Studies.

Barnes received numerous awards throughout his career, including the NASA Medal for Exceptional Engineering Achievement and the H.J.E. Reid Award for outstanding technical paper.

"James was an inventor who took ideas and turned them into first-of-a-kind technologies to enable new aircraft- and space-based measurement capabilities," said Stephen G. Jurcyzk, director of Langley's Systems Engineering Competency. "I truly admired James for his commitment, intellect, dedication, integrity and loyalty to NASA and the people who worked for him. He will be greatly missed by family, friends and colleagues."

Memorial donations may be offered to Saint Mark's Outreach Program for Homeless and Less Advantaged, P.O. Box 1582, Suffolk, VA 23439.

Remembering The P-51 Mustang

Tuskegee Airman Recalls His Days Flying NACA-Tested Plane

By BILL UHER
Planners Collaborative Inc.

When he was 24, Tuskegee Airman Howard Baugh didn't care about what went into designing and building his beloved North American P-51 Mustang. What he cared about was: "Will this plane get me up, let me do my job, and get me home safely?"

Today, the 84-year-old Baugh stands on the wing of a red-tailed P-51C Mustang on the flight line at Langley Air Force Base and peers into an "office" much like the one he had for 134 combat missions in World War II. He talks to the ground crew and some Air Force fighter pilots and recounts what it was like to fly high-altitude, long-range bomber support missions.

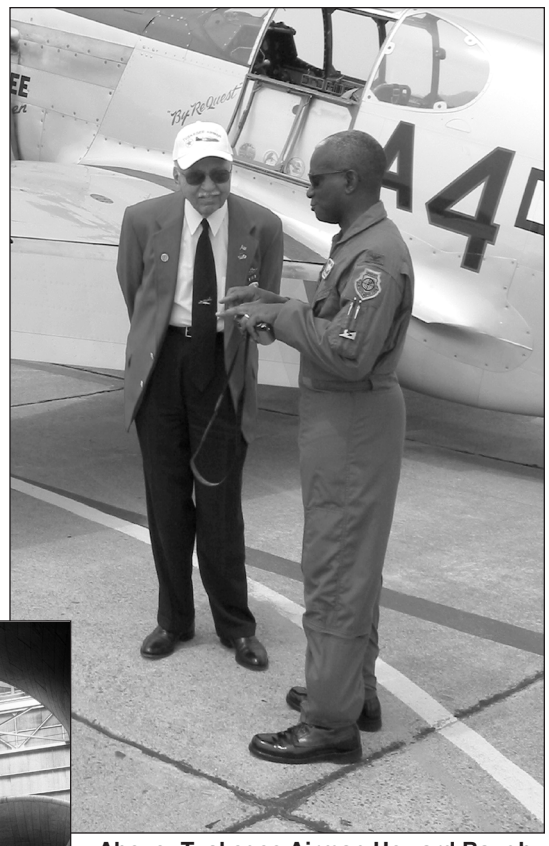
The sight of an old photograph of a P-51 in a National Advisory Committee on Aeronautics (NACA) wind tunnel prompted Baugh to say, "It's nice to think that right where we are today played a big part in designing what I consider to be the best airplane in the world."

In the 1940s, a series of new NACA wing shapes — or airfoils — helped make many American planes fly faster and farther, giving them advantages that helped sway the outcome of World War II. NACA tested the P-51 in its full-scale wind tunnel to extract the best performance from the new fighter design.

When NASA was formed in 1958, the NACA Langley Memorial Aeronautical Laboratory became NASA Langley Research Center.

Baugh had been flying a P-40 Warhawk when the new Mustangs arrived. Though the cockpits were essentially the same, he knew the P-51 was a different kind of bird when he strapped in for the first time in Italy in the summer of 1944.

"The P-40 was a good plane," Baugh said. "But the first thing I noticed about the P-51 was its huge four-blade propeller. Of course, we had to steer our planes down the runway using the tail wheel. The plane always wanted to jump into the sky and it was hard to keep the tail wheel down. If the tail of the plane came up too early, you could lose control and the plane would run off the runway. The training we got on the Mustang was … 'Just get in and go.'"



Above: Tuskegee Airman Howard Baugh visits Langley Air Force Base in May.
Photo by Bill Uher

Left: A P-51 is tested in Langley Memorial Aeronautical Laboratory's full-scale wind tunnel in 1945.
NASA photo

And once it was in the air, the P-51 accelerated like nothing Baugh had flown.

"It had a lot more power than the P-40. It could climb faster and had much more torque," he said. "There was nothing difficult about flying it other than you had to 'fly' it all the time. It really kept you on your toes. But its performance was great.

"We liked to fly as high as we could because the flak couldn't get you," Baugh said. "Most of our missions were flown at 25,000 to 35,000 feet. Somehow, some of the flak still managed to find us. I had my plane as high as 38,000 feet. It still flew just great."

The Mustang was a highly effective long-range escort support for heavy strategic bombers and outclassed most enemy fighters in aerial combat.

The Tuskegee Airmen were the first African-Americans to be trained as WWII military pilots in the U.S. Army Air Corps. One thousand Airmen were trained in Tuskegee, Ala., and 445 entered combat. They painted the tails of their aircraft red for easy identification, thus earning the nickname "Red Tails."

Flying over 15,000 sorties, they destroyed more than 490 enemy aircraft and 45 trains. They never lost a bomber to enemy fighters — a record no other fighter group achieved.

Bill Uher works for Planners Collaborative Inc. in support of Langley's Office of External Affairs.

Grafton Student Earns NASA Scholarship

Jessica Wignall Is The Stepdaughter Of Langley Employee Steven Bauer

By JIM ROBERTS
Researcher News editor

Jessica Wignall, a graduating senior at Grafton High School, is one of five students nationwide to receive a 2004-2005 NASA Scholarship.

The scholarship is worth $2,000, renewable annually for a maximum of $8,000 over six calendar years.

Wignall is the stepdaughter of Steven X. S. Bauer, an employee in Langley Research Center's Configuration Aerodynamics Branch. Her mother, Carol Bauer, is a teacher at Grafton Bethel Elementary School.

Wignall learned of the award two weeks ago. "I was really excited," she said. "Relieved."

Karl G. Schuler, president of the NASA College Scholarship Fund, said there was an "extraordinary" response rate this year. Eighty students applied.

"All the applicants are to be commended for their remarkable achievements," Schuler said. "They have exceedingly high grade point averages, exceptional SAT scores, and are actively involved in their communities, making the final selection very difficult."

Wignall scored 1530 on the SAT and will graduate third in her class. Her resume includes leadership roles in the Student Council Association, the Mu Alpha Theta honor society, Model United Nations and Students Against Destructive Decisions. She volunteers at local nursing homes and soup kitchens and also completed a mentorship in the pathology lab at the Mary Immaculate Hospital through the New Horizons Governor's School for Science and Technology.

She was accepted at Virginia Tech and the College of William and Mary but will attend the University of Virginia to study biology. She plans to attend graduate school and hopes to work as a biological researcher.

"I'd like to be important in some way," she said. "I'd like to discover something beneficial."

The NASA Scholarship Fund, Inc., is a non-profit corporation established in 1982 to award academic scholarships to qualified dependents of NASA employees and is a direct result of a substantial unsolicited gift by noted Pulitzer Prize-winning author James A. Michener. There have been a total of 114 recipients of the scholarship to date.

Langley Research Center Director Roy D. Bridges Jr. presents a NASA Scholarship award plaque to Jessica Wignall. She plans to study biology at the University of Virginia.
Photo by Jeff Caplan

Invention Awards Presented

Langley Inventors Received More Than $90,000 In 2003

By JIM ROBERTS
Researcher News editor

Langley Research Center hosted a Space Act Invention Awards ceremony on June 8 in the H.J.E. Reid Conference Center. Center Director Roy D. Bridges Jr. attended and handed out 144 certificates to 89 inventors.

"You are the best," Bridges said. "You are what makes Langley good."

NASA's Inventions and Contributions Board (ICB) offers the following awards: $350 to the author of an innovation reported in NASA Tech Briefs; $1,000 to the sole author (or $500 each for multiple authors) of software that has been approved for release by NASA; and $1,000 to the sole inventor (or $500 each for multiple inventors) of an invention that has received approval for patent application by NASA under the Space Act. A fourth award, the Board Action Award, do not require a patent; the nominated technologies are valued on the benefit they have demonstrated in the government's pursuit of aerospace activities. NASA may offer up to $100,000 for a Board Action Award.

Langley's awards for 2003 and 2004 totaled more than $90,000. Bridges set a goal of $175,000 for 2005 and encouraged the award-winners to get their colleagues involved in the program.

"Our success here at Langley depends on us letting people know what we do," he said. "The Space Act Awards program does that."

For more information about the Space Act Invention Awards, contact Jesse Midgett, Langley's Awards Liaison Officer, at 864-3936 or visit: <icb.nasa.gov>.

The award-winners:

■ **Tahani Amer**, Tech Brief Award for "Wing-Viewer Software For Pressure And Temperature Sensitive Paint Data Acquisition And Processing With Multiple Scientific Grade Cameras"

■ **Robert Anastasi**, Patent Application Award for "Non-Destructive Evaluation Of Wire Insulation And Coatings"

■ **Laura Bass**, Software Award for "SECRET"

■ **Laura Bass**, Board Action Award for "SRGULL (Engineering Model For The Prediction Of Airframe-Integrated Subsonic/Supersonic Hydrogen Combustion Ramjet Cycle Performance)"

■ **W. Belvin**, Tech Brief Award for "Photogrammetry Method For Transparent, Reflective Or Dark Surfaces"

■ **Harry Belvin**, Tech Brief Award for "Dry Process For Manufacturing Hybridized Boron Fiber/Carbon Fiber Thermoplastic Composite Materials From A Solution Coated Precursor"

■ **Harry Belvin**, Tech Brief Award for "Process Of Making Boron-Fiber Reinforced Composite Tape"

■ **David Boerschlein**, Software Award for "Semi-Markov Unreliability Range Evaluator (SURE) For SUN-OS (UNIX), Version 7.9 (Computer Program)"

■ **Robert Bryant**, Tech Brief Award for "Piezoelectric Transducer For Vibrational Alert And Sound In A Personal Communication Device"

■ **Robert Bryant**, Tech Brief Award for "Piezo Actuator Diagnostic And Performance Verification System"

■ **Robert Bryant**, Patent Application Award for "Electro-Active Transducer Using Radial Electric Field To Produce/Sense Out-of-Plane Transducer Motion"

■ **Robert Bryant**, Patent Application Award for "Electro-Active Device Using Radial Electric Field Piezo-Diaphragm For Sonic Applications"

■ **Robert Bryant**, Patent Application Award for "Electro-Active Device Using Radial Electric Field Piezo-Diaphragm For Control Of Fluid Movement"

■ **Robert Bryant**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus"

■ **Timothy Bryant**, Board Action Award for "Passive Fetal Heart Monitoring System"

■ **Ricky Butler**, Software Award for "WinASSIST: (Windows Abstract Semi-Markov Specification Interface To The SURE Tool)"

■ **Roberto Cano**, Tech Brief Award for "Dry Process For Manufacturing Hybridized Boron Fiber/Carbon Fiber Thermoplastic Composite Materials From A Solution Coated Precursor"

■ **Roberto Cano**, Tech Brief Award for "Process Of Making Boron-Fiber Reinforced Composite Tape"

■ **Chau-Lyan Chang**, Tech Brief Award for "Langley Stability And Transition Analysis Code (LASTRAC)"

■ **Richard Chattin**, Board Action Award for "High Yield Macro-Fiber Composite Manufacturing Process"

■ **Neil Coffey**, Patent Application Award for "Tributary Analysis Monitoring System"

■ **Neil Coffey**, Board Action Award for "Tributary Analysis Monitoring System"

■ **John Companion**, Board Action Award for "Rapidly Quantifying The Relative Distention Of A Human Bladder (CIP Of LAR 13689-1)"

■ **John Connell**, Tech Brief Award for "Photogrammetry Method For Transparent, Reflective Or Dark Surfaces"

■ **John Connell**, Tech Brief Award for "Phenylethynyl Containing Reactive Additives"

■ **John Connell**, Tech Brief Award for "Organic-Inorganic Hybrid-Clay Nanocomposites"

■ **John Connell**, Patent Application Award for "Polyimides From 2,3,3',4'-Biphenyltetracarboxylic Dianhydride And Aromatic Diamines"

■ **John Connell**, Patent Application Award for "Space Environmentally Durable Polyimides And Copolyimides"

■ **John Connell**, Board Action Award for "Composition Of And Method For Making High Performance Resins For Infusion And Transfer Molding Processes"

■ **Benjamin Copeland**, Board Action Award for "High Yield Macro-Fiber Composite Manufacturing Process"

■ **Robert Costen**, Tech Brief Award for "Backed Bending Actuator"

■ **K. Cramer**, Patent Application Award for "Method For Anticipating Problems With Electrical Wiring"

■ **K. Cramer**, Patent Application Award for "Marking Electrical Wiring With Condition Indicators"

■ **Paul Danehy**, Tech Brief Award for "Photogrammetry Method For Transparent, Reflective Or Dark Surfaces"

■ **Archie Dimery**, Tech Brief Award for "Piezo Actuator Diagnostic And Performance Verification System"

■ **Shelly Ferlemann**, Software Award for "SECRET"

■ **Shelly Ferlemann**, Software Award for "SRGULL (Engineering Model For The Prediction Of Airframe-Integrated Subsonic/Supersonic Hydrogen Combustion Ramjet Cycle Performance)"

■ **Shelly Ferlemann**, Board Action Award for "SRGULL (Engineering Model For The Prediction Of Airframe-Integrated Subsonic/Supersonic Hydrogen Combustion Ramjet Cycle Performance)"

■ **Robert Fox**, Tech Brief Award for "Piezoelectric Transducer For Vibrational Alert And Sound In A Personal Communication Device" *(awarded posthumously)*

■ **Robert Fox**, Tech Brief Award for "Piezo Actuator Diagnostic And Performance Verification System" *(awarded posthumously)*

■ **Robert Fox**, Patent Application Award for "Electro-Active Transducer Using Radial Electric Field To Produce/Sense Out-of-Plane Transducer Motion" *(awarded posthumously)*

■ **Robert Fox**, Patent Application Award for "Electro-Active Device Using Radial Electric Field Piezo-Diaphragm For Sonic Applications" *(awarded posthumously)*

■ **Robert Fox**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus" *(awarded posthumously)*

■ **Robert Fox**, Board Action Award for "High Yield Macro-Fiber Composite Manufacturing Process" *(awarded posthumously)*

■ **Neal Frink**, Software Award for "TETrahedral Cell-Centered (TETCC) Unstructured Flow Solver"

■ **Gary Giles**, Software Award for "Equivalent Laminated Plate Solution (ELAPS) - A Design Oriented Method For Structural Analysis Of Entire Airframes"

■ **William Goad**, Tech Brief Award for "Wing-Viewer Software For Pressure And Temperature Sensitive Paint Data Acquisition And Processing With Multiple Scientific Grade Cameras"

■ **Dana P. Gould**, Tech Brief Award for "Version Finite Elements For Radiation Heat Transfer Between Diffuse-Gray Surfaces (software)"

■ **Alan Hargens**, Patent Application Award for "Ultrasonic Apparatus And Method To Assess Compartment Syndrome"

■ **Alan Hargens**, Patent Application Award for "Non-Invasive Method Of Determining Absolute Intracranial Pressure"

■ **Alan Hargens**, Patent Application Award for "Non-Invasive Method Of Determining Diastolic Intracranial Pressure"

■ **Joycelyn Harrison**, Tech Brief Award for "Method Of Making Thermally Stable, Piezoelectric And Pyroelectric Polymeric Substrates (div Of LAR 15279-1)"

■ **Richard Hellbaum**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus"

■ **Paul Hergenrother**, Tech Brief Award for "Phenylethynyl Containing Reactive Additives"

■ **Paul Hergenrother**, Patent Application Award for "Polyimides From 2,3,3',4'-Biphenyltetracarboxylic Dianhydride And Aromatic Diamines"

■ **Paul Hergenrother**, Patent Application Award for "Space Environmentally Durable Polyimides And Copolyimides"

■ **Paul Hergenrother**, Board Action Award for "Composition Of And Method For Making High Performance Resins For Infusion And Transfer Molding Processes"

■ **Joseph Heyman**, Board Action Award for "Rapidly Quantifying The Relative Distention Of A Human Bladder (CIP Of LAR 13689-1)"

■ **James High**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus"

■ **Nancy Holloway**, Board Action Award for "Passive Fetal Heart Monitoring System"

■ **Antony Jalink**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus" *(awarded posthumously)*

■ **Brian Jensen**, Tech Brief Award for "Method Of Preparing Polymers With Low Melt Viscosity (div Of LAR 15534-1)"

■ **Norman Johnston**, Tech Brief Award for "Process Of Making Boron-Fiber Reinforced Composite Tape"

■ **Kennie Jones**, Software Award for "Book Builder"

■ **Thomas Jones**, Tech Brief Award for "Photogrammetry Method For Transparent, Reflective Or Dark Surfaces"

■ **Jeffrey Jordan**, Patent Application Award for "Ruthenium Stabilization For Improved Oxidation/Reduction Catalyst Systems"

■ **William Kleb**, Tech Brief Award for "Multi-Stage Runge-Kutta Circular Advection Solver, Release 3.0"

■ **William Kleb**, Tech Brief Award for

Continued on Page 5

Awards

Continued from Page 4

"Literate Programming Extraction Engine"

■ **Raymond Kvaternik**, Software Award for "Rotor: A Fortran Computer Program/Calculating Rotor HUB Impedances & Fixed-HUB Vibratory Loads ... Method Of Harmonic Balance (Computer Program)"

■ **Bruce Little**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus"

■ **David Lockard**, Tech Brief Award for "Ffowcs Williams-Hawkings Solvers (FWH2D, FWH3D, FWHT)"

■ **David Lockard**, Software Award for "Ffowcs Williams-Hawkings Solvers (FWH2D, FWH3D, FWHT)"

■ **John Mankins**, Tech Brief Award for "Reusable Module For The Storage, Transportation, And Supply Of Multiple Propellants In A Space Environment"

■ **Louise Marchello**, Tech Brief Award for "Process Of Making Boron-Fiber Reinforced Composite Tape"

■ **Daniel Mazanek**, Tech Brief Award for "Reusable Module For The Storage, Transportation, And Supply Of Multiple Propellants In A Space Environment"

■ **Johnny Mau**, Board Action Award for "High Yield Macro-Fiber Composite Manufacturing Process"

■ **Paul Mirick**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus"

■ **Paul Mirick**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus"

■ **Robert Moses**, Tech Brief Award for "Piezo Actuator Diagnostic And Performance Verification System"

■ **Robert Moses**, Board Action Award for "High Yield Macro-Fiber Composite Manufacturing Process"

■ **Dennis Mowrey**, Board Action Award for "Passive Fetal Heart Monitoring System"

■ **Donald Oglesby**, Patent Application Award for "Ruthenium Stabilization For Improved Oxidation/Reduction Catalyst Systems"

■ **Cheol Park**, Tech Brief Award for "Organic-Inorganic Hybrid-Clay Nanocomposites"

■ **Peter Parker**, Board Action Award for "Single Vector Calibration System For Multi-Axis Load Cells And Method For Calibrating A Multi-Axis Load Cell"

■ **Daniel Perey**, Patent Application Award for "Optically Stimulated Electron Emission Contamination Monitor And Method"

■ **Daniel Perey**, Patent Application Award for "Method For Anticipating Problems With Electrical Wiring"

■ **Daniel Perey**, Patent Application Award for "Marking Electrical Wiring With Condition Indicators"

■ **Shimer Pinckney**, Software Award for "SECRET"

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■ **Stephen Scotti**, Tech Brief Award for "A Method To Formulate Approximate Representations Of Analytic Results In N-Dimensional Space To Arbitrary Accuracy"

■ **Qamar Shams**, Tech Brief Award for "Piezo Actuator Diagnostic And Performance Verification System"

■ **Joseph Smith**, Tech Brief Award for "Phenylethynyl Containing Reactive Additives"

■ **Joseph Smith**, Tech Brief Award for "Organic-Inorganic Hybrid-Clay Nanocomposites"

■ **Joseph Smith**, Patent Application Award for "Polyimides From 2,3,3',4'-Biphenyltetracarboxylic Dianhydride And Aromatic Diamines"

■ **Joseph Smith**, Patent Application Award for "Space Environmentally Durable Polyimides And Copolyimides"

■ **Joseph Smith**, Board Action Award for "Composition Of And Method For Making High Performance Resins For Infusion And Transfer Molding Processes"

■ **Glen Sachse**, Patent Application Award for "Optical Path Switching Based Differential Absorption Radiometry For Substance Detection"

■ **Jacqueline Schryer**, Patent Application Award for "Ruthenium Stabilization For Improved Oxidation/Reduction Catalyst Systems"

■ **Terry St. Clair**, Tech Brief Award for "Liquid Crystalline Thermosets From Ester, Ester-Imide, And Ester-Amide Oligomers"

■ **Terry St. Clair**, Tech Brief Award for "Method Of Making Thermally Stable, Piezoelectric And Pyroelectric Polymeric Substrates (div Of LAR 15279-1)"

■ **Terry St. Clair**, Patent Application Award for "Thermally Stable, Piezoelectric And Pyroelectric Polymeric Substrates And Method Relating Thereto (continuation Of -1)"

■ **Ji Su**, Tech Brief Award for "Backed Bending Actuator"

■ **Bryant Taylor**, Patent Application Award for "Tributary Analysis Monitoring System"

■ **Bryant Taylor**, Board Action Award for "Tributary Analysis Monitoring System"

■ **Ping Tcheng**, Tech Brief Award for "A Fiber Optic Differential Displacement Sensor (FODDS)"

■ **Toshiaki Ueno**, Patent Application Award for "Ultrasonic Apparatus And Method To Assess Compartment Syndrome"

■ **Martin Waszak**, Tech Brief Award for "Dynamic Simulation Of An Aeroelastic Fixed Wing Micro Aerial Vehicle"

■ **Anthony Watkins**, Patent Application Award for "Ruthenium Stabilization For Improved Oxidation/Reduction Catalyst Systems"

■ **Kent Watson**, Tech Brief Award for "Photogrammetry Method For Transparent, Reflective Or Dark Surfaces"

■ **Kent Watson**, Patent Application Award for "Polyimides From 2,3,3',4'-Biphenyltetracarboxylic Dianhydride And Aromatic Diamines"

■ **Kent Watson**, Patent Application Award for "Space Environmentally Durable Polyimides And Copolyimides"

■ **Erik Weiser**, Tech Brief Award for "Liquid Crystalline Thermosets From Ester, Ester-Imide, And Ester-Amide Oligomers"

■ **Christopher Welch**, Patent Application Award for "Optically Stimulated Electron Emission Contamination Monitor And Method"

■ **William White**, Tech Brief Award for "Piezo Actuator Diagnostic And Performance Verification System"

■ **William Wilkie**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus"

■ **William Wilkie**, Board Action Award for "Method Of Fabricating A Piezoelectric Composite Apparatus"

■ **William Wood**, Tech Brief Award for "Multi-Stage Runge-Kutta Circular Advection Solver, Release 3.0"

■ **William Wood**, Tech Brief Award for "Literate Programming Extraction Engine"

■ **Stanley Woodard**, Tech Brief Award for "Piezoelectric Transducer For Vibrational Alert And Sound In A Personal Communication Device"

■ **Stanley Woodard**, Patent Application Award for "Tributary Analysis Monitoring System"

■ **Stanley Woodard**, Board Action Award for "Tributary Analysis Monitoring System"

■ **Keith Woodman**, Patent Application Award for "Tributary Analysis Monitoring System"

■ **Keith Woodman**, Board Action Award for "Tributary Analysis Monitoring System"

■ **Dennis Working**, Patent Application Award for "Electro-Active Device Using Radial Electric Field Piezo-Diaphragm For Control Of Fluid Movement"

■ **Mark Wynkoop**, Board Action Award for "Passive Fetal Heart Monitoring System"

■ **William Yost**, Patent Application Award for "Ultrasonic Apparatus And Method To Assess Compartment Syndrome"

■ **William Yost**, Patent Application Award for "Method For Anticipating Problems With Electrical Wiring"

■ **William Yost**, Patent Application Award for "Marking Electrical Wiring With Condition Indicators"

■ **Allan Zuckerwar**, Board Action Award for "Passive Fetal Heart Monitoring System"

Turbulence

Continued from Page 4

this summer. Delta flight crews will use and evaluate the technology during regularly scheduled flights in the U.S. and South America. The prototype is expected to fly for six to nine months.

Researchers from NASA, the companies involved and the Federal Aviation Administration (FAA) will evaluate interim and final results of the turbulence prediction radar system. If the evaluation is successful, the technology may be adopted for new and existing aircraft.

"The TPAWS technology is an enhanced turbulence detection radar system that detects atmospheric turbulence by measuring the motions of the moisture in the air," said Jim Watson, NASA's TPAWS project manager. "It is a software signal processing upgrade to existing predictive Doppler wind shear systems that are already on airplanes."

> *"The TPAWS technology is an enhanced turbulence detection radar system that detects atmospheric turbulence by measuring the motions of the moisture in the air."*
>
> **Jim Watson**

Ira Pearl, a flight operations technical support director for Delta, added, "Delta Air Lines is always interested in evaluating new technologies that offer the potential for improved ride quality and safety for our customers and flight crews."

Researchers already have tested TPAWS on a NASA Boeing 757 research aircraft. The TPAWS-equipped plane searched for turbulence activity around thunderstorms for eight weeks. The aircraft flew within a safe distance of storms so researchers could experience the turbulence and compare the radar prediction to how the plane responded to the encounters. After one severe patch of turbulence, a NASA research pilot said his confidence in the enhanced radar had "gone up dramatically," since the plane's weather radar did not show anything, while the same time the TPAWS display showed rough skies ahead.

Atmospheric turbulence encounters are the leading cause of injuries to passengers and flight crews in non-fatal airline accidents. FAA statistics show an average of 58 airline passengers are injured annually in U.S. turbulence incidents. Ninety eight percent of those injuries happen because people don't have their seatbelts fastened. Turbulence encounters are hazardous; they cost airlines money and time in the form of re-routing flights, late arrivals, additional inspections and maintenance for aircraft.

NASA's Aviation Safety and Security Program is a partnership with the FAA, aircraft manufacturers, airlines and the Department of Homeland Security to reduce the fatal aircraft accident rate, protect air travelers and the public from security threats. Researchers at three NASA centers are working with Langley to develop advanced, affordable technologies to make flying safer and more secure: Ames Research Center, Dryden Flight Research Center and Glenn Research Center.

■ *For more information about NASA's Aviation Safety and Security Program, visit: <http://avsp.larc.nasa.gov>.*

Michael Braukus of NASA Headquarters and Brian J. Pickett of Delta Air Lines also contributed to this story.

AdVentures

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FOR SALE: 2001 Audi S4, 15K miles, Twin Turbo, APR chip installed, loaded with extras, showroom condition, Audi warranty, $32,900. Call 229-3210.

FOR SALE: 1999 Ducati ST4 916cc, red with chrome rims, dual exhaust carbon pipes, raised handle bars, garage-kept, $8,000 or best offer. Call 703-937-7563.

FOR SALE: 1994 Geo Prizm, white exterior, automatic transmission, A/C, new alternator and battery; good condition, just passed May inspection, $2,000 or best offer. Call 930-2204.

FOR SALE: Stihl FS 110 loop handle grass trimmer, new Stihl 4-Mix engine design, powerful, lightweight, fuel efficient, low emissions; brand new, still in box, one year warranty, $299. Call 424-9594.

FOR SALE: Queen-size sled bed frame, dark wood, $100 or best offer. Call 249-2240.

FOR SALE: Little Tikes toys: ride-on and police car, tricycle, duplo bench, and various other like-new toys. Call 838-1043.

FOR RENT: Timeshare condo on Seascape golf course in Kitty Hawk, N.C., 2 BR, 2 BA, sleeps six, fully furnished, covered deck; access to indoor and outdoor pools, rec room and laundry room; available June 19-26, $835. Call 596-8484.

FOR RENT: Waterfront home, 3BR, 3BA, Jacuzzi overlooking Willoughby Harbor, boat slip option available, $2,000 per month. Call 270-9221

FOR RENT: Waterfront apartment, 2BR, 1BA, wood flooring, oak cabinets, unrestricted deep water access to Willoughby Bay, available July 1. Call 270-9221.

FOR RENT: Townhouse in Yorkshire Downs, York County, 3 BR, 2.5 BA, swimming pool, tennis court, available late June. Call 224-3886

WANTED: Small sailboat, 14 to 20 feet long in fair to good condition, with or without trailer. Call 865-6659.

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The deadline for the July 2 edition is June 21. E-mail submissions to <j.r.roberts@larc.nasa.gov>.

Soccer Club Hosts Two Games A Week

Langley Research Center's Soccer Club hosts co-ed games after work every Tuesday and Thursday. All levels are welcome; players are asked to bring a white T-shirt and a dark T-shirt for ease of team segregation.

For more information or to be added to the Soccer Club's e-mail list, contact Mahyar Malekpour at 864-1513 or visit the club's web site: <http://larc-exchange.larc.nasa.gov/lea/soccer/>.

Special Activities Planned At VAM

The Virginia Aviation Museum (VAM) will host the following activities in June:

■ "Air Fair," a day of special activities for the family, will take place from 9:30 a.m. to 5 p.m. **June 19**.

■ "Aviation Mondays," a series of discussions and activities for elementary school students, will be offered from 9:30 to 10:30 a.m. and from 11 a.m. to noon on **June 21** and **28**.

■ "Introduction to Aviation," a two-day study of aerodynamics, navigation, instrumentation and the basics of flight for children between the ages 10 and 17, will be offered from 9:30 a.m. to 12:30 p.m. on **June 30** and **July 1**. There is a fee for this activity, and pre-registration is required.

The VAM, located at Richmond International Airport, is open from 9:30 a.m. to 5 p.m. Monday through Saturday and from noon to 5 p.m. Sunday.

For more information, call 804-236-3622 or visit <http://vam.smv.org> on the Internet.

Space Camp Offered At Wallops

The Virginia Space Flight Academy will host nine Space Flight Adventure Camp sessions this summer. The weeklong camps for boys and girls between the ages 12 and 15 will be offered from **June 20** through **Aug. 15** at NASA's Wallops Flight Facility on the Eastern Shore of Virginia.

Tuition is $595, which includes double-occupancy housing, meals, transportation while at camp, a workbook, a T-shirt and all instructional materials.

For more information, call 866-757-7223, e-mail <spaceacademy@intercom.net> or visit the Virginia Space Flight Academy web site: <http://www.VaSpaceFlightAcademy. org>.

J-Lab Hosting Summer Physics Fests

Jefferson Lab will host "Summer Physics Fests" from 10 a.m. to noon **June 30, July 28, Aug. 11** and **Aug. 25** in the CEBAF Center auditorium in Newport News.

The "Physics Fests," designed for families and student groups, include an interactive summary of the research conducted at the Jefferson Lab followed by the popular "Deep Freeze" and "Hot Stuff" presentations.

The presentations are free and open to the public, but reservations are required. For reservations or more information, contact Stacy Ring at 269-7560 or <ring@jlab.org>.

Blood Drive On July 14

The American Red Cross will host a blood drive on **July 14** in Langley Research Center's H.J.E. Reid Conference Center. Langley employees, contractors and retirees are invited to participate. Civil servants should charge their time to "Excused Leave."

Future blood drives are scheduled on **Sept. 15** and **Nov. 24.** For more information, contact Connie Small at 864-2564 or <Connie.J.Small@nasa.gov>.

Dan Stead has worked for Lockheed Martin in Langley Research Center's Quiet Flow Facility for six years, running experiments with airframe noise. He was born in Philadelphia and now lives in Norfolk. He earned a bachelor's degree in aerospace engineering from West Virginia University and a master's degree from George Washington University. Outside of work, he enjoys cycling and playing and refereeing soccer. What does he like about working at Langley? "The variety of the projects have kept me here, and the variety of the people makes it interesting," he says.

Photo by Jeffrey Sykes

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